



CENTER *for* INTEGRATED NANOTECHNOLOGIES

Sandia National Laboratories • Los Alamos Laboratory

CINT User Meeting

September 19-20, 2016

La Fonda Plaza Hotel, Santa Fe, New Mexico



EFRC – NEES Accomplishment Meeting (Closed meeting)

September 20-21, 2016

The Materials Science and Data Technology Nexus Meeting

September 21, 2016


Monday Morning, September 19

7:30 am	Registration Continental Breakfast Available	Mezzanine Ballroom North
9:00 am	Plenary Session <i>Grant Heffelfinger, CINT Director (Acting)</i> Welcome, Introductions and CINT Update <i>Grant Heffelfinger, CINT Director (Acting)</i>	Ballroom South
9:20 am	Dmitri Basov University of California, San Diego <i>"Quantum materials: insights from infrared nano-optics"</i>	Ballroom South
10:00 am	Break	Ballroom North
10:20 am	Thomas E. Mallouk Pennsylvania State University <i>"Assembly and Disassembly of Layered Solids"</i>	Ballroom South
11:00 am	Juan de Pablo University of Chicago <i>"Nanoparticles in Liquid Crystals, and Liquid Crystals in Nanoparticles"</i>	Ballroom South
11:40 am	Informal poster viewing	Mezzanine
12:00 pm	Lunch	Ballroom North
12:00 pm	User Executive Committee Lunch (closed)	Stiha Room

Monday afternoon, September 19

2016 CINT Users Meeting - Parallel Symposia

Symposia	Quantum Materials Integration	Electrochemical Nanostructures: Mesoscale Architectures & Integration	From Molecules to Integrated Structures – Assembly and Fabrication across Length Scales
	Ballroom South	Stiha Room	New Mexico Room
	Moderators: <i>Mike Lilly / Han Htoon</i>	Moderators: <i>Sang Bok Lee/Katherine Jungjohann</i>	Moderators: <i>Dale Huber / Millie Firestone</i>
1:00 pm	Cory Dean <i>Columbia University</i> <i>"Pursuit of the exciton condensate in double layer graphene"</i>	Ziying Wang <i>University of California, San Diego</i> <i>"In situ Analytical Characterization of Interfacial Phenomena in All-Solid-State Thin Film Lithium Ion Batteries"</i>	Brian Benicewicz <i>University of South Carolina</i> <i>"Designed interfaces via polymer grafted nanoparticles – the key to polymer nanocomposite properties"</i>
1:30 pm	Scott Crooker <i>Los Alamos National Laboratory</i> <i>"Spin coherence and dielectric screening in monolayer semiconductors"</i>	John Cumings <i>University of Maryland</i> <i>"Sulfur Entrapment in Carbon Nanostructures: TEM, Processing and Electrochemical Studies"</i>	Amalie Frischknecht <i>Sandia National Laboratories</i> <i>"Microphase separation in polymer brushes"</i>
2:00 pm	Nick Vamivakas <i>University of Rochester</i> <i>"Solid-state quantum optics with atomically thin material"</i>	Katharine Harrison <i>Sandia National Laboratories</i> <i>"Lithium deposition and stripping visualized through operando electrochemical transmission electron microscopy"</i>	Carmel Majidi <i>Carnegie Mellon University</i> <i>"Soft-Matter Electronics with Liquid Metal Dispersions and Microfluidic Networks"</i>
2:30 pm	Mark Eriksson <i>University of Wisconsin-Madison</i> <i>"High-speed semiconductor qubits in nanofabricated Si/SiGe quantum dots"</i>	Chris Applett <i>Sandia National Laboratories</i> <i>"Energy Generation and Energy Storage at Small Scale: Challenges and Opportunities for Nano Enabled Devices"</i>	Ximin He <i>Arizona State University</i> <i>"Bioinspired Dynamic Materials for Adaptive Reconfigurations"</i>
3:00 pm	Break	Break	Break
3:30 pm	Michael Manfra <i>Purdue University</i> <i>"AlGaAs/GaAs two-dimensional electron gas: paragon of exotic correlations and topologically driven phenomena"</i>	Yue Qi <i>Michigan State University</i> <i>"Computational Design of Coatings, Interfaces, and nano-structures for Si based electrodes"</i>	Yongfeng Lu <i>University of Nebraska Lincoln</i> <i>"Two-photon polymerization for 3D fabrication at different length scales"</i>
4:00 pm	Ajit Srivastava <i>Emory University</i> <i>"2D materials- A new platform for strong light-matter interactions"</i>	Janice Reutt-Robey <i>University of Maryland</i> <i>"Innovate Proximal Probes of Energy-Storage Interfaces: Structure and Electronics"</i>	Bryan Kaehr <i>Sandia National Laboratories</i> <i>"Dynamic materials and templates for three-dimensional lithography"</i>
4:30 pm	John Abraham <i>Sandia National Laboratories</i> <i>"Deterministic Fabrication of Diamond Color Centers for Engineered Quantum Devices using Focused Ion Beam Implantation"</i>	Jinkyong Yoo, CINT <i>"Si-Ge Nanowire heterostructures for Lithium ion Battery Anode"</i>	Matthew Herman <i>Los Alamos National Laboratory</i> <i>"Unique Capabilities of Two-photon Polymerization for 3D Micro Fabrication"</i>
5:00 pm	Poster Session	Mezzanine	

7:00 pm	 CINT 10-year anniversary dinner: Celebrating 10 years of Innovation Ballroom North Open to all meeting participants Speakers include former and current members of the CINT Management Team
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Tuesday Morning, September 20

7:30 am	Registration Continental Breakfast available		Mezzanine Ballroom North
7:45 am	Users Executive Committee Town Hall Meeting (All Welcome) <ul style="list-style-type: none"> Don Lucca, Chair, Users Executive Committee Grant Heffelfinger, CINT Director (Acting) Heather Brown, User Program Manager 		Ballroom North
	Moderators: Mike Lilly / Han Htoon	Moderators: Sang Bok Lee/Katherine Jungjohann	Moderators: Dale Huber / Millie Firestone
Symposia	Quantum Materials Integration Ballroom South	Electrochemical Nanostructures: Mesoscale Architectures & Integration Stiha Room	From Molecules to Integrated Structures – Assembly and Fabrication across Length Scales New Mexico Room
8:30 am	Ralph Krupke Karlsruhe Institute of Technology “Waveguide integrated carbon nanotube light sources for quantum photonic circuits”	YiYing Wu The Ohio State University “One Electron at a Time: superoxide-based rechargeable K-O2 Batteries”	Steven Graves The University of New Mexico “DNA based molecular logic, a key tool for diagnostics, sensing, and modulation of material properties at the nanoscale”
9:00 am	Zhaowei Liu University of California, San Diego “Quantum plasmonics and potential applications”	Amy Prieto Colorado State University “Electrodeposition of Intermetallic electrodes for rechargeable batteries”	Michaelann Tartis New Mexico Institute of Mining and Technology “Designing self-assembled ultrasound theranostic agents for treatment of irresectable cancers”
9:30 am	Emanuel Tutuc The University of Texas at Austin “Electron Transport and Device Applications of van der Waals Heterostructures”	Paul Braun University of Illinois, Urbana-Champaign and Xerion Advanced Battery Company “Direct electrodeposition of planar and 3D Structured Li-ion anodes and cathodes”	Thomas Crawford University of South Carolina “Programmable Self-Assembly of Magnetic Nanoparticles”
10:00 am	Break	Break	Break
10:30 am	Edo Waks University of Maryland “Controlling light on a chip with single semiconductor spins”	Bruce Dunn University of California, Los Angeles “Photo-patternable solid electrolytes for 3D architectures”	Nelson Bell Sandia National Laboratories “Integration of Multi-materials in Additive Manufacturing”
11:00 am	Justin Koepke Sandia National Laboratories “Atomically Precise Single Donor Placement by STM Lithography”	Seung Soon Jang Georgia Institute of Technology “Nanophase-Segregated Structure and Transport Properties of Polymer Electrolyte Membrane Fuel Cell: Multi-Scale Modeling Approach”	Chris Spadaccini Lawrence Livermore National Laboratory “Additive Manufacturing and Architected Materials.”

11:30 am	Discussion Panel	Steve Harris Lawrence Berkeley National Laboratory “The Statistics of Battery Failure”	Pulak Nath Los Alamos National Laboratory “Emulating Biophysical Features of Human Organs using Hybrid Manufacturing.”
12:00 pm	Concluding Remarks by Symposium Organizer ****End of Symposium***	Concluding Remarks by Symposium Organizer ****End of Symposium***	Concluding Remarks by Symposium Organizer ****End of Symposium***
	Lunch		
Ballroom North			
** End of CINT User Meeting **			

MATERIALS SCIENCE NEXUS DATA TECHNOLOGY

Materials Science and Data Technology Nexus
an IMS mini-symposium

September 21
La Fonda Plaza Hotel
La Terraza Meeting Room
Santa Fe, NM

Sponsored in part by:



The Materials Science and Data Technology Nexus Wednesday Morning, September 21		
7:30 am	Registration & Continental Breakfast	La Terraza
8:30 am	Moderator: Alexander Balatsky Welcome, Introductions and IMS Update LANL – INSTITUTE FOR MATERIALS SCIENCE	
9:00 am	Stanislav Borysov Nordic Institute for Theoretical Physics - NORDITA “Organic Materials Database: an Online Database with Focus on Data Mining “	
9:25 am	Cristina Garcia-Cardona (with Marian Anghel – CCS-3 Ricardo Lebensohn - MST-8) LANL - INFORMATION SCIENCES "Integrated Framework for Parameter Estimation in Mesoscale Material Models"	
9:50 am	Abdullah Mueen University of New Mexico Title to be Announced	
10:15 am	Break	La Terraza
10:40 am	Surya Kalidindi George W. Woodruff School of Mechanical Engineering “Innovations in Data Engineering and Science: Applications to Materials Design, Development, and Deployment”	
11:05 am	Robert Hackenberg LANL - SIGMA “Detailed Application of Microstructure-Aware Curation”	
11:30 am	Turab Lookman LANL – ADVANCED ENGINEERING ANALYSIS Title to be Announced	
11:55 pm	Lunch	La Terraza

The Materials Science / Data Technology Nexus

Wednesday afternoon, September 21

1:00 pm	Abigail Hunter LANL- LAGRANGIAN CODES Title to be Announced
1:25 pm	Matthias Geilhufe Nordic Institute for Theoretical Physics - NORDITA “Organic Dirac-line materials - a data mining study”
1:50 pm	Philip Schembri LANL – ADVANCED ENGINEERING ANALYSIS Title to be Announced
2:15	Ian Foster Argonne National Laboratory Title to be Announced
2:40 pm	Alexei Skurikhin LANL- SPACE DATA SCIENCE & SYSTEMS Title to be Announced
3:05 pm	Break La Terraza
3:20 am	Raymond Osborn Argonne National Laboratory Title to be Announced
3:45	Stephan Eidenbenz LANL - Title to be Announced
4:10 pm	James Ahrens LANL - APPLIED COMPUTER SCIENCE Title to be Announced
4:35 pm	Filip Ronning LANL - CONDENSED MATTER & MAGNET SCIENCE Title to be Announced
5 to 8 pm	Reception and close La Terresa